

09/480,193

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PATENT
ATTORNEY DOCKET IR 3556

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Shi Jun Yang

Group Art Unit 1773

Serial No.: 09/372,499

Examiner: UHLIR, Nikolas J.

Filed : 01/10/2000

For: POLYMERIC ARTICLES HAVING A TEXTURED SURFACE AND
FROSTED APPEARANCE

DECLARATION UNDER 37 CFR 1.132

Mail Stop AF
Commissioner for Patents
PO. Box 1450
Alexandria, VA 22313-1450

Sir:

Declarant, SHI-JUN YANG, hereby declares as follows:

1. That I am an inventor of the above-identified application and am familiar with the prosecution thereof, including the Examiner's conclusion in the Office Actions mailed 3/17/03 and 09/25/03 that the claimed compositions are obvious, and the Examiner's suggestion that the applicant present a comparison of the instantly claimed invention to that of the formulations by Hennig in US Patent 4,876,311.

2. That I believe my claimed discoveries are not taught or suggested by the cited art, as shown by the attached comparison data.

3. That I conducted experiment(s) on June 30 and July 09, 2003, as recorded in my lab notebook No 12114, pages 106-108, copies of which are attached hereto; wherein polymer particles having

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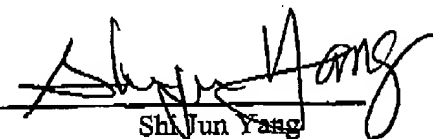
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59% by weight of methyl methacrylate (MMA), 40% by weight styrene (STY), and 1% by weight allyl methacrylate (ALMA) cross-linker were synthesized. 30% by weight of the MMA/STY/ALMA particles were then compounded with 70% by weight polymethylmethacrylate (PMMA) and injection molded to form a 2" x 3" x 0.125" plaque. The visual appearance of the plaque was Opaque and the Total White Light Transmission (TWLT) was 22.0 - 24.0 % as determined by a Hunterlab colorimeter using ASTM E1331 and ASTM E1163.

4. That the results of the above experiments show the formulations presented by the Hennig reference are far outside the application targets for frosted articles as claimed in the present application.

5. That all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that willful false statements may jeopardize the validity of this application or any patent issued thereon.

Date: 12/16/2003

Signature: 
Shi Jun Yang

Attachment: 3 notebook pages

Data Sheet for Suspension Process using Small Reactor

Experiment #: Frosted 0625 B

Date: 7-9-03

*Handled by
To Discontinue SS
Tuesday Before*

Sample size: 1000 g monomer

total sample 800

Suspending agent mixtures

DI water-g	PVA-g	Total mix-g
2940	48	3000
98%	1.60%	

DI water-g	PAMPS-solu	Total mix-g
2352	120	2400
98%	5%	

Charge the above suspending agent into reactor with agitation. Remove oxygen from reactor using N2 flow

Spot 2	Monomer compositions	Weigh the following ingredients carefully into a bottle.							
ID	MMA	EA	styrene	ALMA	DVB	DEHA	n-BDM	%Inhibitor	
g									
g									
g									
Frosted 0625	PVA-susp	59.00%	0.00%	40%	1.00%	0.00%	0.00%	0.10%	0.50%
g		590	0	400	10	0	0	1	5
g									
g									

Monomer Comp

- Step 3 Maintain the agitation at 140 RPM and raise reactor temperature to 75 C
- Step 4 Charge the monomer mixture into reactor according to recommended rate after thorough mixing
- Step 5 Hold reactor temperature at 75 C for 30 minutes
Hold reactor temperature at 78 C for 40 minutes 12-0
Hold reactor temperature at 78-79 C for 180 minutes 5-1 C 230 min
Hold reactor temperature at 82 C for 90 minutes 6-0 min

Time	Hold Time	Temperature	Stirrer RPM	Particle Size	Charge Rate	Comments
0610	Reheat Suspension mix					
0615	Wash to monomer mix					
0700	Temp to 70°C					
0715	Charge Complete					
0730	750	72.20	200			
0730	0	74.9 (72.9) ↓	160			
0750	30	74.8	160			
0800	60	74.7	1210 ↓ 0500			
0830	0	78	190 ↓		930	
0900	30	75.0	190			
0930	60	77.8			930	
1000	90	78.0	187			
1030	120	78.0			1030	
1030	0	78.0	187			
1100	30	78.0	187			
1100	0	78.0	190			
1300	60	83.7	190			

*Run Sample C
1 hr 10 min at 78°C
2 hr → 78°C
3 hr → 78°C
cool down*

Particle Size AT end of Run after Cool down
Particle Size After washing + Bottom Sample

*Control
80.93
48.79
50.37*

Data Sheet for Suspension Process using Small Reactor

PUA Susp. in Agent 3000 grm liq/
DIH₂O 2940 grm 98%.

DIH₂O 2940 gm 98%

PVA 60 gm 7%

Suspension Agent Mixture - 1000 gm

nama 5908

ST 1.1.1.1 400 gm

Alnus 10 gm

addition 1 gm

Monomer Compositions

Before
Bird withing

188-
188-188

Factor Partic. Size
Frosted - 92.67um
Control - 82.56um
(89um)
Control 80.87
Frosted 106.0

→ milk white

Temp TD	84°C (81.5)
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Invented by

Date _____

78-03

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NO. 813 P. 11/12

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03.73.81.2007

Date

Date

20-03

Recipe for Suspension Process using Small Reactor

Date: 6/26/2003

sample wt.

Sample size: 1000 g monomer

Step 1

Suspending agent mixtures

DI water-g	PVA-g	Total mix-g
2940	60	3000
98%	2%	

sample wt.

total sample

800

DI water-g	PAMPS-solu	Total mix-g
2352	120	2400
98%	5%	

Charge the above suspending agent into reactor with agitation. Remove oxygen from reactor using N2 flow

Weigh the following ingredients carefully into a bottle.

ID	Monomer compositions	MMA	EA	styrene	ALMA	DVB	DEHA	n-DDM	%Initiator
9									
9									
Frost-sus0825	PVA-susp	59.00%	0.00%	40%	1.00%	0.00%	0.00%	0.10%	0.40%
9		590	0	400	10	0	0	1	4

Step 3

Maintain the agitation at 160 RPM and raise reactor temperature to 78 C

Step 4

Charge the monomer mixture into reactor according to recommended rate after thorough mixing

Step 5

Hold reactor temperature at 75°C for 30 minutes
 Hold reactor temperature at 78°C for 45 minutes
 Hold reactor temperature at 78-79°C for 153 minutes
 Hold reactor temperature at 82°C for 30 minutes
 Hold reactor temperature at 84°C for 30 minutes
 The peak temperature may be 5-8 degree higher than the heating temperature

step 6

The exothermal starts at about 285 min. after the feed. Watch carefully the exothermal peak temperature and remove excess heat properly.

Step 7

Collecting the polymer beads by passing the mixture through a 200 mesh screen under vacuum.

Step 8

Clean the feeding line, reactor, and pump using proper solvent and water thoroughly for future use.

12114

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